

NORTH DEVON UNESCO BIOSPHERE RESERVE NATURE RECOVERY PLAN, 2021-25

OUR CONTRIBUTION TO TACKLING THE GLOBAL ECOLOGICAL EMERGENCY

SUMMARY AND INTRODUCTION



VISION FOR NATURE BY 2030

By 2030, nature is recovering across northern Devon. There is more wildlife-rich habitat for us all to enjoy - covering 30% of the land area – in our fields and woods, on the moors and coast, along our rivers and across the sea. Wildlife has the space it needs to flourish. Thriving farming, fishing and forestry are helping nature to recover right across the Biosphere area. Communities, councils and businesses are putting nature back into our towns and villages. Declining species like salmon, hedgehog, cuckoo, skylark, lapwing, swift and house martin are recovering – and once again there are myriads of wildflowers and insects to enjoy in the countryside and marine wildlife is thriving. Ambitious projects have helped bring back icons like beaver, pine marten, chough, white-tailed eagle and osprey. Our quality of life, the economy and our response to climate change are stronger for it. More is required, but we are proud to be playing our part in tackling the global ecological emergency.

What happens next is up to every one of us

Sir David Attenborough, "Extinction, The Facts"

This draft plan is subject to a one-month public consultation closing 15 August 2021, and will then be approved by the Biosphere Partnership.

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FOREWORD

We are in a time of unprecedented change, threat and opportunity for the natural environment. The climate and ecological emergencies are upon us. Public support for the environment has never been greater. Policies and incentives for land and water management are changing.

The perception remains that the global ecological emergency is a problem of countries far from home. Yet, the root causes and consequences are plainly visible across the UK and here in northern Devon. Our wildlife is a shadow of its former glory - farmland and woodland birds, salmon, pollinators, wildflowers and many other species are in long-term decline and we have lost important and keystone species. Today, the UK is among the most nature-depleted countries on earth. Of all the European countries we have among the lowest woodland cover (13% across the UK and 12% in northern Devon), compared with 29% in France, 32% in Germany and five countries exceeding 50% - Brazil has almost 60%!). Nature has been, and continues to be, corralled into smaller and smaller fragments of suitable habitat due to the destruction of wildlife habitats and intensification of land use. Climate change is exacerbating these problems. Our two major rivers, the Taw and Torridge, are failing ecological and chemical standards – revealing that land use and activities in their catchments are not sustainable.

Our environment can no longer guarantee the multiple benefits it provides for our food and water security, health and wellbeing and for tackling the immense threat of climate change. It risks failing altogether unless we act now.

I am convinced we can buck this dangerous negative spiral of nature's decline and maintain a thriving economy. Indeed, the two go hand in hand as demonstrated by actions of far-sighted and inspirational individuals, farmers, communities, organisations and businesses all over the country. But if we are to turn the tide for nature's recovery everyone needs to engage through their choices and actions - all of us as consumers, and especially farmers and land managers who can be a key part of the solution to helping nature recover. The latter will need help through new incentives, innovative green financing, and the development of more sustainable and profitable business models. Conservation partners also need to prioritise, target and coordinate our efforts better. This plan aims to help do just that.

The coming decade must be a decade of action for nature and climate. It's time for urgent and transformative local action – business as usual will not solve the problem. Here in northern Devon we have a special responsibility and opportunity conferred on us as a UNESCO Biosphere Reserve – to be a beacon for a sustainable future. It's time to make that happen.

Let's play our part, and more – in the global action to tackle the ecological emergency. Together, let's start putting nature on the road to recovery across northern Devon.

Mike Moser

Chair, Nature Improvement Group

North Devon UNESCO Biosphere

SUMMARY

1. This plan is the North Devon UNESCO Biosphere's response to the global ecological emergency. It sets out the priority actions required from 2021-25 to move towards our 2030 Vision for nature's recovery across northern Devon. It covers land, freshwater and the intertidal zone, while actions for the marine environment are set out in the Biosphere's [Marine Natural Capital Plan](#).
2. The plan addresses the root causes of nature's decline by prioritising making more and better space for nature over 30% of the Biosphere in the areas where it will make most difference, and building nature's recovery into productive farming and forestry across the entire landscape as well as in towns and villages. It will help address the climate emergency through increasing natural resilience (adaptation) and carbon storage and sequestration (mitigation).
3. The plan presents actions to support communities and businesses, and particularly farmers and landowners/managers to be at the heart of nature's recovery. Responsibility for promoting delivery of the actions lies with the Biosphere's partners through its Nature Improvement Group which will monitor and report on implementation. Progress will be assessed annually and an evaluation will take place in 2025, when the plan will be fully updated for 2026-30. Meanwhile, the plan will remain a "living" document, being strengthened as new information becomes available.
4. The following five action plans detail the priorities for the key land types in the Biosphere. Priority actions within each plan include: a) safeguarding and enhancing existing areas of wildlife-rich habitats and restoring / wilding /creating new areas to make larger and better connected habitat networks; b) actions to enhance populations of priority or declining species (including Devon Special Species) and to reintroduce species that have been lost (subject to detailed feasibility studies and licensing); c) enabling actions through policies, regulations, incentives and community engagement; d) monitoring and research.

COAST:

- Restore wildlife-rich clifftop grassland, heath and scrub habitats.
- Improve dune habitats and increase populations of rare species by promoting dynamic processes and controlling invasive plants.
- Achieve good water quality status for the Taw/Torridge estuary.
- Create or re-instate wildlife-rich dynamic coastal grazing marshes, particularly at Braunton and Chivenor Marshes; and create reed beds along the estuary.
- Promote conservation measures for coastal birds including the natural re-colonisation of the coast by choughs; sustain biosecurity on Lundy to support the ongoing recovery of seabirds and other ground nesting birds; facilitate the return of breeding white-tailed eagles to Lundy.
- Reduce human disturbance at all high tide estuary wader roosts; establish disturbance free zones around the estuary for breeding ringed plover, oystercatcher, curlew, lapwing and shelduck; and reduce seal disturbance at Morte Point.
- Pursue options to re-establish breeding ospreys and white storks around the estuary, and the re-introduction of water vole at Braunton marshes and elsewhere.
- Address threats to the scribble lichen and fringed shield lichen at Berrynarbor; and consider re-introduction of the beach comber beetle if found to be extinct at Braunton Burrows and Woolacombe, its last sites in England.
- Promote measures to reduce disposal of plastics into the environment.

GRASSLAND AND ARABLE:

Almost all of the land covered by this action plan is being used for agricultural production. The focus is to support farmers with incentives and advice to: a) retain and manage existing areas of wildlife rich habitats; b) restore or convert some areas of their land back to wildlife rich habitat; c) integrate measures for nature's recovery into the rest of their productive land. Specific priorities include:

- Ensure all existing high quality semi-natural grassland, heathland and bracken habitat is under favourable long-term management.
- Convert substantial areas of intensive grassland or arable land into habitats of higher wildlife value.
- Encourage in-field and boundary trees, including wood pasture and traditional orchards, following silvo-pasture and silvo-arable practices as appropriate.
- Take significant areas of land out of farming for wilding, targeting areas in the Less Favoured Area and those with high-risk soils.
- Encourage farms to move towards regenerative agriculture practices.
- Reduce or eliminate the use of chemical wormers and pesticides/biocides.
- Create wildlife ponds and scrapes; buffer hedges, rivers and ditch margins from the impact of fertilizer, herbicide and pesticide applications; and implement insect-and bird-friendly measures into both pasture and arable land.
- Introduce special conservation measures for key declining farmland species such as breeding lapwing, curlew and broken-belted bumblebee.

TOWNS AND VILLAGES:

- Plant 10,000 new urban trees on public land by 2025 with the aim of doubling urban tree canopy cover by 2030.
- Manage road verges, urban waterways and the Tarka Trail for wildlife, and create new wildlife corridors to link green spaces.
- Improve gardens, business premises, school grounds, churchyards and public spaces (parks etc) for nature by creating wildflower meadows or patches, ponds, small woodlands. Include features such as nest boxes, native trees and shrubs (such as the rare Devon whitebeam).
- Help declining swifts and house martins through nest box schemes, and hedgehogs by providing hedgehog highways.
- Promote and practice minimal use or avoidance of pesticides, herbicides and peat-based products.
- Ensure that any new development leads to net nature gain through planning policy and adopting *Building with Nature* standards and best practices. Include provision for bats, swifts and house martins in housing development plans.

TREES, WOODLANDS AND HEDGES

- Increase tree canopy cover, by creating many new nature-rich woodlands and encouraging trees outside woodlands. Give emphasis to broadleaved expansion but including some conifers. Encourage transitional woody habitats including expanding woodland edges and scrub.
- Bring existing woodlands, including plantations on ancient woodland sites, into appropriate management to improve biodiversity.
- Control non-native invasive plants and take measures to reduce damage by deer and grey squirrels.
- Integrate more trees on farms through agroforestry (silvo-pasture and silvo-arable).
- Promote hedge creation and restoration to achieve at least 10km of hedge per square kilometre across enclosed parts of the Biosphere. Bring existing hedges into favourable condition for wildlife.

- Create or restore standard orchards that are managed for nature.
- Complete a feasibility study and preparations for reintroduction of pine marten, extend the distribution of Devon whitebeam and promote nestbox schemes for hole-nesting birds where natural cavities are lacking.

WETLANDS AND WATERBODIES

- Restore and re-naturalise riverine floodplains to create wildlife-rich mosaics of wetlands, scrub and wet woodlands, and establish natural buffer strips along river and stream corridors. Re-naturalise/wild areas of species-poor habitat on the Taw and Torridge headwaters.
 - Protect, restore and create new wet woodlands, species-rich wet grasslands, ponds, scrapes and reed/sedge beds.
 - Restore blanket bogs, mires and wet heathland on Dartmoor and Exmoor both for wildlife and as carbon and water stores.
 - Reduce point source and diffuse pollution into rivers and streams and buffer them from road and urban run-off; strengthen citizen science and “eyes on the river” to track river quality.
 - Improve river spawning habitat for salmon and other fish species by removing barriers to migration and making habitat improvements; promote voluntary 100% catch and release for river angling.
 - Improve habitat connectivity to allow species like the marsh fritillary and narrow bordered bee-hawkmoth to spread; provide nest sites / boxes for willow tit in wet woodlands that lack natural nest sites.
 - Reintroduce beavers and water voles in the Biosphere river systems working closely with land managers; supplement the remaining natural populations of freshwater pearl mussel through captive breeding.
 - Promote biosecurity measures for, and control of, non-native invasive species, including preventing further spread of the North American signal crayfish in the Torridge.
5. The plan does not attempt to cost the individual actions but recognises that a blended stream of funding from different sources will be required for implementation (some of which is available now, and some which will emerge during the plan period). Some actions will require targeted project funding, and the identified partner organisations will work together to secure this. Innovative funding streams such as green finance, carbon and biodiversity trading are also expected to play an increasing role, topping up funds from more traditional sources such as existing and new agri-environment schemes, voluntary inputs and private financing.

I INTRODUCTION TO THE FIVE ACTION PLANS

PURPOSE AND SCOPE

This plan sets out the necessary and priority actions to meet an ambitious 2030 Vision and Goals for nature's recovery across the terrestrial parts of North Devon's UNESCO Biosphere Reserve (see Map). These are the minimum things we must do if we truly wish to reverse the loss of nature. The plan covers 2021-25 and will be updated for a further 5-year period from 2026-30 to meet our 2030 Vision for Nature. It will remain a "Living" document throughout, being updated as new information becomes available.



The North Devon Biosphere is defined as all the land that drains into the Taw and Torridge river systems, together with that drained by the streams along the northern Devon coast, from Marsland Mouth in the west to Foreland Point in the east, plus offshore marine areas. It includes parts of Exmoor and Dartmoor and the island of Lundy. Priority measures for nature's recovery in the Biosphere's marine ecosystems are covered in the Biosphere [Marine Natural Capital Plan](#). Intertidal areas on the coast, where marine and terrestrial ecosystems meet, are covered in both plans with this plan focusing on land-based actions

for nature.

The plan is divided into five Action Plans covering each of the major land types found within the Biosphere:

- [COAST](#) (prepared in collaboration with and endorsed by the AONB Partnership) – maritime herb-rich grasslands, heathlands and rocky exposures of coastal slopes and cliffs, dunes, intertidal shores, coastal wetlands and floodplains and the estuary.
- [GRASSLAND AND ARABLE](#) – improved and unimproved intensively managed grassland and arable and horticultural land and horticulture, together with remnants of flower-rich grassland and heathland on freely-draining soils.
- [TOWNS AND VILLAGES](#) – houses and gardens, parks, schools, businesses, brownfield and road verges.
- [TREES, WOODLANDS AND HEDGES](#) – broadleaved and coniferous woodland, wood-pasture, orchards, hedges and scrub.
- [WETLANDS AND WATERBODIES](#) – rivers and streams, floodplains, open water, ponds, wet woodland, wet flower-rich (culm) grassland, upland blanket bog, heaths and mires.

For the upland habitats of Dartmoor and Exmoor National Parks (such as blanket bog, upland heaths and mires) the plan adopts the biodiversity targets and aspirations from the relevant plans of the two national park authorities where further detail can be found. These habitats are of very great importance to nature and support downstream ecosystems in the Biosphere through their water regulation functions.

The plan equates nature to biodiversity, defined broadly as the abundance and richness of all species. It covers all habitats and land uses found in the Biosphere, recognising that the recovery of nature on those parts which are intensively farmed or built over is critical to the recovery of nature over the Biosphere as a whole. Where species are concerned, since there are tens of thousands of these, far too many for each and every one to be covered, the plan focuses on a selection of threatened, keystone and iconic species, especially Devon Special Species identified by the Devon Local Nature Partnership. It also identifies indicator species – ones we can monitor to track how well we are doing.

POLICY FIT

This Nature Recovery Plan is a local implementation plan, developed so we can play a full part in delivering against the following international, national, and local policies and initiatives:

<p style="text-align: center;">INTERNATIONAL</p> <p style="text-align: center;">UN 75th General Assembly Leaders' Pledge for Nature, and G7 2030 Nature Compact</p> <p style="text-align: center;">United Nations Decade of Restoration</p> <p style="text-align: center;">United Nations Convention on Biological Diversity</p> <p style="text-align: center;">United Nations Framework Convention on Climate Change</p> <p style="text-align: center;">Global Goal for Nature - Nature positive by 2030 (WWF)</p>
<p style="text-align: center;">NATIONAL</p> <p style="text-align: center;">Prime Minister's Pledge to protect 30% of the UK by 2030</p> <p style="text-align: center;">UK Government's 25 Year Environment Plan</p> <p style="text-align: center;">Nature Recovery Network</p> <p style="text-align: center;">Farming is Changing - new Agriculture and Environment policies, incentives and legislation</p>
<p style="text-align: center;">LOCAL</p> <p style="text-align: center;">North Devon's UNESCO Biosphere Reserve Strategy</p> <p style="text-align: center;">Devon Climate Declaration and Carbon Plan</p> <p style="text-align: center;">North Devon & Torridge, Mid and West Devon Local Plans</p> <p style="text-align: center;">North Devon Coast AONB Management Plan 2019 - 2024</p> <p style="text-align: center;">North Devon Landscape Pioneer</p> <p style="text-align: center;">Devon Nature Recovery Network</p> <p style="text-align: center;">South West river basin district river basin management plan</p>

WHY DO WE NEED A NATURE RECOVERY PLAN?

Despite great efforts from many organisations and individuals across northern Devon since the area achieved UNESCO status more than 20 years ago (and indeed well before), with a few encouraging exceptions nature continues to decline – a trend that began centuries ago but has accelerated since the 1960s. Today our natural habitats and wildlife have become highly degraded and our ecosystems are ceasing to function as they should. Business as usual will not solve the problems: a new ambitious approach to focus everyone onto agreed priorities is needed. That is what this plan is for.

Nature is of immense value in its own right, and we depend upon it for our health, wellbeing and prosperity. Without a healthy and nature-rich environment, we cannot survive. Half of the world's GDP is moderately or highly dependent on nature¹, and indeed nature is of vital economic importance in northern Devon. The environment provides the main draw for tourism, attracting 6.3 million visitors in 2016 worth £480 million to our local economy; similarly, our farming, forestry and fishing industries all depend on a healthy environment and nature. Nature also helps us to tackle the existential threat of climate change by sequestering or storing carbon and mitigating the impacts of flooding and sea level rise. The business and human case for conserving

¹ http://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf

nature is compelling. The benefits of restoring nature substantially outweigh the costs, and the cost of inaction is even higher.

A recent community survey during the Covid-19 pandemic² showed that 71% of respondents appreciated nature and the environment more at this time, 89% would like to spend more of their free time outside, 87% said they would consider the environmental footprint of their purchases, and 86% would be interested in supporting wildlife and environment. Most people now recognise the high importance of nature to their quality of life – it is no longer a fringe or marginal issue.

These issues together highlight the interconnections and dependencies between nature, food production, tourism, climate change and our health and wellbeing, as recognised by the ecosystem-approach taken by this Plan.

VISION AND PRINCIPLES

The Biosphere's vision for nature in 2030 is summarised below and further elaborated in each of the five Action Plans.

VISION FOR NATURE BY 2030

By 2030, nature is recovering across northern Devon. There is more wildlife-rich habitat for us all to enjoy - covering 30% of the land area – in our fields and woods, on the moors and coast, along our rivers and across the sea. Wildlife has the space it needs to flourish. Thriving farming, fishing and forestry are helping nature to recover right across the Biosphere area. Communities, councils and businesses are putting nature back into our towns and villages. Declining species like salmon, hedgehog, cuckoo, skylark, lapwing, swift and house martin are recovering – and once again there are myriads of wildflowers and insects to enjoy in the countryside and marine wildlife is thriving. Ambitious projects have helped bring back icons like beaver, pine marten, chough, white-tailed eagle and osprey. Our quality of life, the economy and our response to climate change are stronger for it. More is required, but we are proud to be playing our part in tackling the global ecological emergency.

Four principles guide the design and implementation of this plan:

1. Making space for nature, restoring ecosystem functionality, increasing landscape dynamism and addressing the root causes of nature's decline.
2. Prioritising nature-based solutions and natural processes over engineered solutions to deliver greater resilience and to help address the climate emergency (through increasing carbon sequestration and fostering climate change adaptation).
3. Supporting communities, and particularly farmers and other landowners and managers, to be at the heart of nature's recovery, working alongside environmental, private and public sector organisations. Much is already being done, but more is needed.

² <https://www.plasticfreenorthdevon.org/plastic-free-north-devon-consortium?rq=consortium>

- Promoting an increase in overall biodiversity for all built development and pursuing nature improvements from all economic and leisure activities.

GOALS

The two headline Goals fundamental to achieving the Vision are:

GOAL 1: BY 2030, 30% OF LAND WITHIN THE BIOSPHERE IS BIODIVERSITY-RICH HABITAT IN GOOD OR RECOVERING CONDITION.

There is emerging international scientific consensus on the need to protect at least 30% of the Earth to secure nature's recovery and Prime Minister Boris Johnson pledged in 2020 at the UN General Assembly to protect 30% of UK's land by 2030³. In North Devon's UNESCO Biosphere, which is a working landscape, we interpret this 30% to be the core areas for nature's recovery – a network of bigger, better and joined-up wildlife habitats where nature's recovery will be a primary objective for land management whilst not excluding other activities such as sustainable tourism, recreation, forestry or farming so long as they are fully compatible with nature's recovery. The locations of these core areas are not evenly spread across the area but will be concentrated in places (at large and small scales) where the geographic and socio-economic conditions provide the greatest opportunities for the maintenance of natural processes. Spatial targeting of resources will be informed by existing areas of wildlife habitat and the spatial opportunities identified by Devon's Nature Recovery Network (NRN), which is expected to be published by Devon's Local Nature Partnership during 2021. However, every offer to create new, enhanced or expanded nature-rich habitats will be welcomed with open arms. Whilst there will be trade-offs in terms of losses and gains of different species through habitat conversions, the priority actions included in the plan are considered to be those that will most benefit nature overall.

GOAL 2: BY 2030, NATURE RECOVERY HAS BEEN INTEGRATED INTO THE MANAGEMENT OF THE REMAINING 70% OF LAND WITHIN THE BIOSPHERE.

To restore ecosystem functionality and ensure long-term resilience, the recovery of nature must be promoted right across the Biosphere, not just on the 30% of the land where nature conservation is a primary objective. It must also be integrated as an objective into the remaining 70% of land where production (mainly agriculture and forestry) and residential/business objectives are at the fore. These areas will play a crucial role in meeting the ambitions of this plan. Many forward-thinking farmers and land managers are already demonstrating how delivery of public benefits such as nature can be successfully integrated with sustainable and profitable food production for example via low input – high value systems, realising that this makes good business sense and acknowledging that it is where future public support for land management lies.

Achieving the 30% target requires both an improvement in the condition of existing nature-rich habitats, and the restoration or creation of new areas of wildlife habitats. These latter areas will need to come mainly from decisions by landowners and farmers to change the management of existing intensively managed grasslands or arable towards nature conservation objectives, supported by public or green finance support payments such as the existing Countryside Stewardship and upcoming Environmental Land Management schemes or carbon credits, as well as new business models. Opportunities may exist for the re-purposing of brownfield sites for nature's recovery, but these are expected to be small in extent in northern Devon.

³ <https://www.leaderspledgefornature.org/>

A proportion of the 30% target is expected to be achieved through (re)wilding, also known as re-naturalisation (see glossary for definition). A large tract of the Biosphere is classified in agricultural terms as a Disadvantaged Area (a category of Less Favoured Area), recognising how difficult it is to farm the land productively and profitably. Wilding parts of this Disadvantaged Area, supported by public or green finance, is an option particularly well worth exploring.

The terrestrial area of the Biosphere Reserve is around 235,000 ha. To meet Goal 1, 30% of this area should be biodiversity-rich habitat in good or recovering condition by 2030, that is 70,500ha. These areas will not be evenly spread across the Biosphere, but are likely to be clustered according to geography, ecology and socio-economic conditions. Unfortunately, currently available data on the extent of habitats and their condition is not good enough to quantify with any confidence the current situation. Annex 3 presents the best information we currently have, but this is incomplete and comes with many health warnings. Confidence levels in the figures presented are for the most part low.

Approximately 6% of the Biosphere has SSSI status, and a further 4% lies within County Wildlife Sites (CWS). Furthermore, 60% of the land is under an agri-environment scheme such as Environmental Stewardship, Countryside Stewardship, or the England Woodlands Grant Scheme. However, 15% of the SSSI land and 7% of the CWS land is in poor condition. 58% of SSSI land and 27% of CWS land is in medium (recovering condition) and 26% of SSSI land and 22% of CWS land is in good condition (the rest of the CWS land has not been assessed). We can also say that the proportion of land that is (a) either SSSI or CWS and in good condition, (b) under relevant Environmental Stewardship or Countryside Stewardship options, or (c) within an England Woodlands Grant Scheme, is about 34%. Just under two thirds (63%) of the land in the Biosphere could be given a condition score, as it was a SSSI or CWS, or covered by an agri-environment grant. 43 % of the land with a condition score was in unfavourable recovering condition. However, we may expect that the proportion of biodiversity-rich land that is not SSSI, CWS or under any agreement will be substantially lower than that: overall, we cannot as yet say what proportion of biodiversity-rich habitat is in good or recovering condition.

This uncertainty about the existing extent or condition of habitats within the Biosphere highlights the urgent need for accurate data. Further survey will be essential to allow progress with delivery of this plan’s overall goals to be monitored.

ROOT CAUSES AND SOLUTIONS

This plan is based on an analysis of the root causes of nature’s decline across the Biosphere, and the solutions required to address them. These include both current and historical root causes and are summarised in the following table and developed in more detail in each of the five Action Plans.

Root causes of nature’s decline	Recommended solutions for nature’s recovery
Current root causes	<ul style="list-style-type: none"> ● Enforcement of regulations. ● Greatly reduce or stop intensive grazing and the use of fertilizers in priority conservation and restoration areas. ● Create buffers to protect semi-natural habitats from intensive agriculture and run-off (riparian strips, wide hedges, insect and bird margins). ● Manage other farmed areas for sustainable production (reduced use of inorganic fertilisers and
<p><u>Intensification/homogenisation of farmland and soil loss:</u> including increased frequency (and much earlier) mowing and grazing made possible through heavy manure (including slurry) and inorganic fertilizer use; increased winter sheep grazing. Soil degradation and loss particularly from maize cultivation reflects inappropriate locations for cultivation and poor practices. Compaction and sediment run-off into water courses are the most obvious symptoms of this,</p>	

	biocides, no loss of soils, and build nature's recovery into farming practices).
<p><u>Loss of ecosystem dynamism and functionality:</u> we have a frozen landscape, leading to a paucity of early successional habitats and ecotones (transitional zones between habitats, e.g. pasture and woodland). Our landscapes are just too tidy, too neat and too ordered. This process has been facilitated by ever larger and more efficient machines.</p>	<ul style="list-style-type: none"> ● Introduce regenerative farming practices. ● Encourage transitional scrubby habitats to soften the hard boundaries between semi-natural habitats and farmed land, as well as within farmed land. ● Manage woodlands for continuous cover while diversifying the age and species structure and creating openings and glades. ● Support (re)wilding, giving space for natural processes to operate, including natural succession. ● Maintain and increase open mosaic habitats such as brownfield sites, coastal cliffs and slopes. ● Allow water courses to move position over time, including the development of shingle and gravel banks and exposed unstable banks.
<p><u>Nutrients/eutrophication:</u></p> <p>a). Point and diffuse pollution is seriously impacting nature in watercourses and wetlands, including grazing marshes, fens, ponds and reservoirs. It originates from human and bovine waste, and run-off from slurry and fertilizer application to fields.</p> <p>b). Atmospheric nitrogen deposition leading to unnaturally high nutrient levels across the land surface. Although levels may be falling nationally, they are still above critical levels for most habitats: locally ammonia appears a particular problem. It results in undesirable changes to native plant communities and to the loss of lichens. It is also linked to an increase in native plant invasives such as bracken, bluebell and bramble, and to possible loss of plant fecundity.</p>	<ul style="list-style-type: none"> ● Create habitat buffers so the nutrients from artificial fertiliser, slurry and manures do not enter rivers, streams or ponds, woodlands or hedges. ● Reduce ammonia emissions locally through good agricultural practices particularly for intensive livestock enterprises. ● Reduce atmospheric N levels at national level
<p><u>Use of increasingly powerful biocides:</u> pesticides including herbicides, nematicides, insecticides and rodenticides - and the more frequent use of these.</p>	<ul style="list-style-type: none"> ● Stop the use of biocides especially on land adjacent to nature-rich habitats. ● Reduce the use of biocides and improve practices in all other areas.
<p><u>Climate change:</u> Impacts on northern Devon biodiversity remain opaque, except for birds where there are clear indications of a phenological mismatch with some migrant birds; decreased soil moisture availability in spring/early summer is affecting some breeding birds.</p>	<ul style="list-style-type: none"> ● Both global and local actions are necessary to reduce GHG emissions. ● Increase carbon sequestration through the better management of soils, and through the planting and better management of trees, whether in hedges, woodland or elsewhere. ● Make habitats more resilient by increasing their size and quality, and, at landscape level, through increasing connectivity and dynamism.
<p><u>Non-native invasive species (NNIS) and diseases:</u> grey squirrels are a significant threat to young trees; signal crayfish threaten nature in rivers/streams and riparian habitats as do plants such as Himalayan balsam and</p>	<ul style="list-style-type: none"> ● Prioritise biosecurity to avoid arrival of new NNIS and diseases.

Montbretia. Cherry laurel, rhododendron and other non-native plants threaten woodlands and coastal habitats. Rats were a serious problem for seabirds on Lundy but have been eradicated. Many diseases are now affecting trees, notably the fungus that causes ash dieback.	<ul style="list-style-type: none"> Establish clear priorities and target effort for the management, control and eradication of NNIS at landscape scale.
<u>Increasing human and dog disturbance</u> : adversely impacting on overwintering and breeding shorebirds on the estuary.	<ul style="list-style-type: none"> Establish disturbance free zones around the estuary for roosting and breeding.
Historical root causes	
<u>Historical habitat conversion and fragmentation</u> : over many centuries, the natural habitats of the Biosphere (a mosaic of woodlands, rivers and wetlands, grasslands, blanket bog, heaths and dunes) have been converted to land uses that support very little nature - primarily for agriculture or forestry, but also for built development.	<ul style="list-style-type: none"> Ensure no further loss of wildlife-rich habitats. Create or restore priority habitats in target areas, informed by Devon's Nature Recovery Network, to make bigger, better and more joined-up mosaics. Adopt Building with Nature standards, green infrastructure and biodiversity net gain for new built development.
<u>Historical loss of keystone species due to persecution</u> : has affected numerous species including beaver, pine marten, white-tailed eagle, osprey, chough - and many larger mammals.	<ul style="list-style-type: none"> Re-introduce keystone species.

MAKING IT HAPPEN

This is primarily a plan to guide the work of the Biosphere Nature Improvement Group partners. They will work together and with farmers and landowners and communities and businesses to deliver this action plan. Lead partners are identified for each action and they will actively engage with the other partners to drive implementation and report on progress. In many cases, resources for the actions are not yet secured and the partners will examine ways to integrate the action into their own programmes, as well as seeking new resources (and partners) where necessary.

Achieving this plan will require human and financial resources, but with much determination and focus we can do it! There is a role for every individual and every organisation and business in the area. The more who engage, the more can be achieved. Connecting people with nature is therefore a high priority - and is already a key activity of the North Devon Biosphere and many of its partners. Farmers and landowners will be a key part of the solution, and many are already doing much for nature. There are six levers for participation:

- Voluntary action: Many inspiring people, organisations and businesses across the Biosphere Reserve are already helping nature through voluntary actions because they enjoy nature and understand its value. Householders are purchasing nature-friendly food and other products, providing wildlife habitat and feeding birds in their gardens and supporting local conservation organisations; many landowners and farmers are doing excellent work for nature, safeguarding and restoring valuable habitats and creating new areas and moving towards regenerative agriculture; individuals and community groups are increasingly undertaking voluntary work including tree planting, managing wildlife areas and citizen science. Much can be achieved through more voluntary participation.
- Incentives: Financial incentives are vital for landowners, farmers and foresters because managing the land for public goods brings disproportionate costs to them. It is therefore essential that adequate incentives are provided by the government or from other sources (see below) to enable them to make the changes required in land management.
- Regulation: Laws provide the minimum standards for safeguarding nature and should be enforced rigorously when they are broken. Further resources are needed by enforcement agencies.

- Organisational alignment and partnerships: Many organisations across the Biosphere including councils, statutory agencies, conservation organisations, schools and businesses are already doing a lot for nature, including inspirational species and habitat recovery work and public engagement. Partnerships are already strong, but much more can be achieved if we all work together towards the priorities identified in this plan.
- Guidance: Good, clear, accessible sources of advice are essential for all sectors. More is needed, particularly delivered one-to-one, face-to-face.

FINANCING

As described above, significant financial resources will be required for the achievement of this plan – particularly for landowners, farmers and foresters who have the biggest potential for positive impact on nature’s recovery across the Biosphere, but also for the participating organisations and for coordination. The plan does not attempt to cost the individual actions but recognises that a blended stream of funding from different sources will be required for implementation (some of which is available now, and some which will emerge during the plan period). These include:

- Core contributions of partner organisations supported through their normal and enhanced income streams, and better partnership working.
- Public support payments to landowners, with an increasing emphasis on public payments for public goods. The existing Countryside Stewardship scheme will be superseded by the new Environmental Land Management scheme (ELMs) in 2024 (its Sustainable Farming Initiative Pilot starts in 2022) as the Basic Payment Scheme (BPS) is phased out by 2028. The proposed Farming in Protected Landscapes scheme is also expected to support work in the national parks and AONB.
- Grants to organisations for projects (including for further sub-granting to landowners) from Government and philanthropic sources, including Lottery and corporate social responsibility.
- Green finance to landowners through a portfolio of diverse and innovative funding sources including carbon, water and biodiversity trading/offsets, environmental impact bonds, conservation easements, etc.
- Sustainable and profitable business models: Farmers, landowners and other businesses can only contribute to nature’s recovery if their enterprises are both environmentally sustainable and financially viable/profitable, including from the income they receive from public support payments. The coming years present a particular challenge to the farming community as the Basic Payment Scheme is phased out, but also opportunities to re-align their business models to be more sustainable. There are numerous and diverse examples of successful business models across the area that are supporting nature’s recovery ranging from diversification (e.g. farming and ecotourism), to high value / low input nature-friendly food production and direct marketing, to sustainable intensification. Many innovations can be expected.
- Private investment and philanthropy: by individuals (including landowners) who wish to contribute to nature’s recovery, including by volunteering and financial support to conservation organisations..

MONITORING & EVALUATION

Progress and achievements against the plan will be tracked through regular meetings of the Biosphere Nature Improvement Group. The plan will be evaluated in the first quarter of 2025, with a view to incorporating lessons learned and new knowledge and ideas into an updated plan for 2026-2030.

Each action plan includes a list of priorities for monitoring and research. Much can be achieved by existing groups of specialists, citizen science as well as through research and student projects. However, targeted investment will be needed to increase survey and monitoring effort to ensure a strong baseline and effective tracking of progress against the indicators that are laid out in each plan.

ACKNOWLEDGEMENTS

This plan was prepared for the North Devon UNESCO Biosphere by its Nature Improvement Group (see list of the partner organisations on the back cover). The five action plans for key terrestrial habitats were drafted through contributions from over 40 specialists (leaders are underlined) – huge thanks to them all: The drafting groups were as follows:

- **Coast** (prepared in collaboration with the AONB Partnership): Martin Batt (AONB), Andrew Bell (Biosphere), Jenny Carey-Wood (AONB), Laura Carolan (AONB), Jonathon Fairhurst (NT), Paula Ferris (Coastwise), Ed Parr-Ferris (DWT), Paul St Pierre (RSPB), Paul South (NT)
- **Grassland and arable**: Lisa Schneidau (DWT), Laurence Couldrick (WRT), Clare Fitzgibbon (NE), Jane Hart (Biosphere), Tom Parsons (DWT), Justin Seedhouse (NT), Richard Smith (EA), Shanti Smallwood (DWT), Gregg Wilson (NT), Rob Wolton (DHG)
- **Towns and villages**: Andrew Austen (NDC), Dawn Burgess (TDC), Laura Carolan (AONB), Ian Egerton (DBRC), Mark Kentell (NDC), Andrew Moulton (NDC), Bryony Paul (Biosphere), Jenny Plackett (BC), Mark Saunders (NDC)
- **Trees, woodlands and hedges**: Andy Bell (Biosphere), Mick Bracken (Woodland Trust), Jon Burgess (FC), Daniel Cameron (National Trust), Dave Edgcombe (AONB), Steve Edmonds (RSPB), Heather Elgar (Woodland Trust), Sue Hallett (FC), Mike Moser (NIWG), Rob Wolton (DHG)
- **Wetlands and waterbodies**: Laurence Couldrick and Adrian Dowding (WRT), Ben Eardley (NT), Steve Edmonds (RSPB), Daniel Griffiths (EA), Mike Moser (NIWG), Lisa Schneidau (DWT), Matt Turley (DWT), Jack Ward (National Trust)

These groups were supported by Bryony Paul, under the guidance of a Steering Group comprising: Emma Richardson (Chair), Andy Bell, Mike Moser, Lisa Schneidau, Brett Grosvenor.

Mike Moser drafted the Summary, Introduction and Declaration, and managed the project. He and Rob Wolton were the lead editors, and Bryony Paul and Gigha Klinkenborg assisted with the design.

The Devon Biodiversity Records Centre (Ellie Knott and Ian Egerton) and Andy Bell assisted with data and analyses of habitats and species and the preparation of maps.

Representatives of 12 farming and landowning organisations, and members of the four Defra-supported farmer Facilitation Groups (more than 150 farmers/landowners) in the Biosphere were invited to advise on a draft, and we are very grateful for the comments received.

ANNEX 1. ACRONYMS

AONB	North Devon Areas of Outstanding Natural Beauty
ASNW	Ancient Semi Natural Woodland
BAP	Biodiversity Action Plan
CSS	Countryside Stewardship Scheme
DCC	Devon County Council
DHG	Devon Hedge Group
DISI	Devon Invasive Species Initiative
DNPA	Dartmoor National Park Authority

DWT	Devon Wildlife Trust
EA	Environment Agency
ELMs	Environmental Land Management scheme
ENPA	Exmoor National Park Authority
FC	Forestry Commission
FiPL	Farming in Protected Landscapes scheme
IFCA	Inshore Fisheries and Conservation Authority
LNP	Local Nature Partnership
MDDC	Mid-Devon District Council
MOD	Ministry of Defence
NE	Natural England
NIWG	Nature Improvement Working Group (Biosphere)
NLHF	National Lottery Heritage Fund
NRP	Nature Recovery Plan
NT	National Trust
NDC	North Devon Council
PAWS	Plantation on Ancient Woodland Site
TDC	Torrige District Council
TTEF	Taw / Torrige Estuary Forum
WDBC	West Devon Borough Council
WeBS	Wetland Bird Survey
WRT	Westcountry Rivers Trust
WT	Woodland Trust
WWTP	Waste-Water Treatment Plant

ANNEX 2 GLOSSARY

Biodiversity: The variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems” (Convention on Biological Diversity).

Biodiversity offsetting: A system used predominantly by planning authorities and developers to fully compensate for biodiversity impacts associated with economic development, through the planning process.

Building with Nature: Standards, which provide planners and developers with evidence-based, how-to, guidance on delivering high-quality green infrastructure.

Ecosystem: a community of living organisms in conjunction with the non-living components of their environment, interacting as a system. These biotic and abiotic components are linked together through nutrient cycles and energy flows. (Wikipedia)

Ecosystem services: The many and varied benefits to humans provided by the natural environment and from healthy ecosystems. (Wikipedia)

Ecotone: a transition area between two biological communities, where two communities meet and integrate. It may be narrow or wide, and it may be local (the zone between a field and forest) or regional (the transition between forest and grassland ecosystems).

Environmental Land Management: New government schemes intended to support the rural economy while achieving the goals of the 25 Year Environment Plan and a commitment to net zero emissions by 2050. (Defra)

Green finance: Any structured financial activity that's been created to ensure a better environmental outcome. (World Economic Forum)

Keystone species: a species which has a disproportionately large effect on its natural environment relative to its abundance. (Wikipedia)

Natural capital: Natural capital can be defined as the world's stocks of natural assets which include geology, soil, air, water and all living things. (World Forum on Natural Capital)

Nature-based solutions: Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. (IUCN)

(Re)wilding: An approach to restoring natural processes at a range of scales in a cost-effective way, by allowing nature to recover over land of little wildlife interest through giving natural processes the opportunity to act with only light touch human intervention and without defining clear end points.

Semi-natural habitat: An ecosystem with most of its processes and biodiversity intact, though altered by human activity in strength or abundance relative to the natural state. (IPBES)

ANNEX 3. DATA

Crude estimates of the extent of different terrestrial habitats and land uses within the Biosphere and of their condition.

The table below is drawn from information provided on request by the Devon Biodiversity Records Centre (DBRC) (Eleanor Knott, June 2021, *Habitats in the North Devon Biosphere*, DBRC). The habitat and land use data were extracted from three datasets:

- DBRC priority habitat data – UK BAP priority habitats mapped by DBRC as part of the National Biodiversity Network South-West England Pilot Project (2002/2004). DBRC updates this database every year with field scale data from its many survey projects, and that of partners.
- Natural England's Priority Habitat Inventory data – UK BAP priority habitats from the national priority habitat inventories, as well as data from the National Forest Inventory and environmental stewardship schemes.
- Natural England's Living Maps dataset – habitats mapped using satellite data, a pilot to the developing Natural England Living England map.
http://randd.defra.gov.uk/Document.aspx?Document=14198_SD1705_FinalReport.pdf

The priority given to the various data sets, and confidence in their accuracy, were as follows:

- DBRC priority habitats. Data under 5 years old (or under 20 years old for woodland) and where the habitat has been described as 'definitely present' or 'definitely present within the polygon but not mappable': high confidence. Data over 5 years old (or 20 years old for woodland) or recent data

where the habitat has been described as 'Probably the Priority Habitat but some uncertainty of interpretation': medium confidence.

- Priority Habitat Inventory: high /medium/low confidence.
- Living Maps data: low confidence data.

Habitat condition was assessed as follows:

Good:

- SSSIs assessed as being in Favourable condition.
- CWS assessed as being Green.
- Land under Environmental Stewardship (ESS) or Countryside Stewardship (CSS) beneficial options (2015 data).
- Woodlands under EWGS (2016 data).

Medium:

- SSSI assessed as being in Unfavourable Recovering condition.
- CWS assessed as being Amber.
- Land under Environmental Stewardship or Countryside Stewardship without beneficial options.

Poor

- SSSI assessed as being in Unfavourable No Change or Unfavourable Declining condition.
- CWS assessed as being Red.

Unknown

- None of the above apply.

SSSI and CWS condition data were used in preference to the environmental stewardship data if there was a difference in condition.

For further information on data sources and analysis please see the DBRC report.

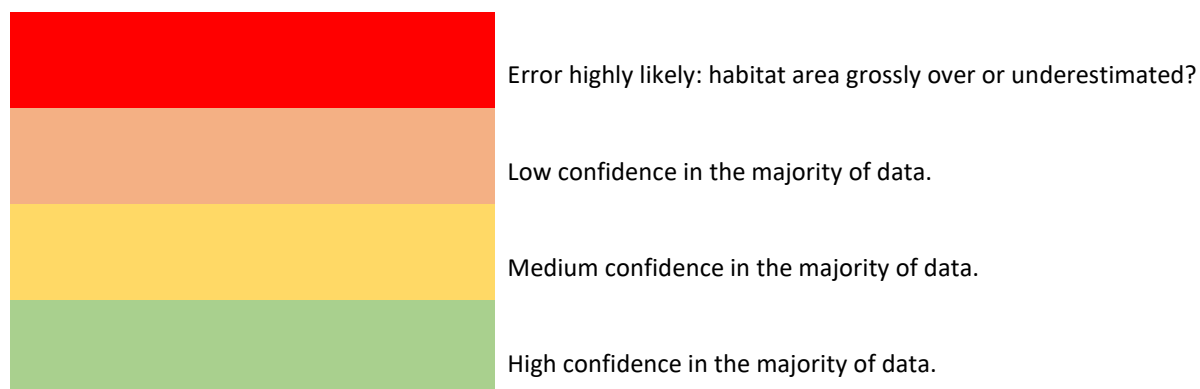
Caveats

Confidence levels in most of the habitat/land use area data are low, and the figures should not be used without severe health warnings. The data set from which most of the figures were drawn in that of Living Maps. Here confidence that any polygon had been mapped correctly at the detailed habitat level was just 66% - one third of polygons will have been wrongly mapped.

Based on local knowledge, scrutiny of the quality of the data presented in the table strongly suggests that the area of improved grassland has been much underestimated, while that of semi-improved grassland has been overestimated. Likewise, the areas of several habitats are almost certainly much exaggerated, notably lowland heathlands, lowland dry acid grasslands, lowland meadows, traditional orchards, floodplain grazing marsh and lowland fens. Moreover, it is improbable that 7% of the Biosphere is occupied by Culm grassland (species-rich *Molinia* and *Juncus* pastures). Overall, the area of biodiversity-rich (semi-natural) habitat has been much overestimated, while that of intensive farmland has been underestimated. Figures for which confidence levels are particularly low are blocked in red.

It should be noted that the assessments of areas which are in good condition refer only to land that is SSSI or County Wildlife Site, or under beneficial Environmental Stewardship or Countryside Stewardship options, or

within an England Woodland Grant Scheme. The true proportion of biodiversity-rich habitat in good condition will be considerably less.



Habitat or land use	Total area in Biosphere (ha)	% of Biosphere occupied by this habitat/land use	% of habitat notified as SSSI or recognised as CWS.	Extent of habitat that is (a) SSSI/CWS land in good condition, (b) under beneficial ES/CSS options or (c) EWGS (ha)	% of habitat that is (a) SSSI/CWS land in good condition, (b) under beneficial ES/CSS options or (c) EWGS	Comments
COAST						
Mud, sand or shingle	2462	1	69	1466	60	
Maritime cliffs and slopes	4503	2	35	1892	42	
Coastal saltmarsh	1324	1	26	449	34	
Coastal sand-dunes	1526	1	74	126	8	

Coastal grazing marsh	2464	1	11	1071	43	Refers to land within tidal range even if not subject to tides.
Lowland heathland	3686	2	28	1006	27	Highly improbable there is so much lowland heathland in the Biosphere.
Upland heathland Exmoor & Dartmoor	3693	2	89	367	10	Both Exmoor and Dartmoor. Includes Priority Habitats Inventory fragmented heath category.
Upland heathland Exmoor	26201	1	89	292	11	
GRASSLAND AND ARABLE						
Improved grassland	52493	22	0	20612	n/a	
Semi-improved grassland	35023	15	1	13876	n/a	Extent of semi-improved grassland is likely to be far too great.

Lowland dry acid grassland	1603	1	12	1203	75	Highly improbable there is so much lowland dry acid grassland in the Biosphere.
Lowland meadows	4963	2	8	2103	42	Species-rich, semi-natural grassland on neutral, free-draining soils in the lowland and upland fringes. Includes DBRC/ Priority Habitat Inventory Lowland calcareous grassland. Highly improbable there is so much lowland meadow in the Biosphere.
Upland hay meadows	12	0	0	11	92	Includes Priority Habitat Inventory Upland calcareous grassland.
Upland acid grassland	2710	1		700	26	Upland acid grassland. Includes Priority Habitat Inventory Grass moorland.

Bracken	1803	1	6	826	46	Includes both lowland and upland bracken.
Arable and horticultural	31847	14	0	9515	n/a	
TOWNS AND VILLAGES						
Urban	11736	5	0	6	700	
TREES, WOODS AND HEDGES						
Broadleaved and mixed woodland	18603	8	20	5460	29	Broadleaved, mixed & yew woodland.
Coniferous woodland	3901	2	1	1137	29	
Scrub	2867	1	2	907	32	
Traditional orchards	9714	4	0	2205	23	Highly improbable there is so much traditional orchard in the Biosphere.
Wood pasture and parkland	1255	1	44	671	53	
Hedges						See separate table below

WETLANDS AND WATERBODIES						
Blanket bog	4094	2	90	344	8	
Upland flushes, fens and swamps	162	0	13	78	48	% of land occupied by this habitat that is SSSI/CWS seems too low.
Upland heathland Dartmoor - see Row 12 above	1044	0	93	60	6	Upland heathland split between Exmoor (coastal) and Dartmoor (wetland)
Purple moor grass and rush pasture	16222	7	19	6565	40	Culm grassland. This extent of Purple moor grass and rush pasture is probably too high, and the proportion notified as SSSI or recognised as CWS too low.
Floodplain grazing marsh	6452	3	1	2625	41	Refers to land outside tidal range. Highly improbable there is so much floodplain grazing marsh in the Biosphere.

Lowland fens	4234	2	4	1406	33	Includes Reedbeds. Highly improbable there is so much lowland fen in the Biosphere.
Surface water	943	0	28	284	30	
Wet woodland	2447	1	16	692	28	
UNCLASSIFIED HABITAT	1910	1	35	1499	78	Priority Habitats Inventory Unknown habitat
TOTAL	234654		10	79900	34	6% of the Biosphere is notified as SSSI and a further 4% as CWS.
Total excluding habitats which are not biodiversity rich (semi-natural)	103555	44		35891	45	Excluded habitats are improved grassland, semi-improved grassland, arable and horticulture, and urban. Seems improbable that 44% of the Biosphere is occupied by SN habitats.

Habitat or land use	Total length in Biosphere (km)	% of Biosphere occupied by this habitat/land use	% of habitat notified as SSSI or recognised as CWS.	Extent of habitat that is in good condition (km)	% of habitat in good condition	Comments
Hedges	21105	3	?	8020	38	Assuming hedges are on average 3m wide, they occupy 6,300 ha.

Data for hedge length derived from Living Maps, that for condition from the following report: Craig Hodgson, 2010, *Devon Hedgerow Surveys 2007-2009*, Farming and Wildlife Advisory Group.

BACK PAGE

This plan was jointly produced by the Biosphere's Nature Improvement Group (NIWG) which includes representatives from:

Bumblebee Conservation Trust
 Butterfly Conservation
 Dartmoor National Park
 Devon Biodiversity Records Centre
 Devon Birds
 Devon County Council
 Devon Hedge Group
 Devon Wildlife Trust
 Environment Agency
 Exmoor National Park
 Forestry Commission
 National Trust
 Natural England
 North Devon Coast AONB
 North Devon District Council
 North Devon Biosphere Reserve
 Royal Society for the Protection of Birds
 Torridge District Council
 Westcountry Rivers Trust
 Woodland Trust